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BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

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PUBLIC UTILITIES COMMISSION

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PUBLIC UTILITIES COMMISSION	DOCKET NO. 05-0069
HAWAIIAN ELECTRIC COMPANY, INC. For Approval and/or Modification of Demand-Side and Load Management Programs and Recovery of Program Costs and DSM Utility Incentives	

HAWAII RENEWABLE ENERGY ALLIANCE'S POST-HEARING OPENING BRIEF

AND CERTIFICATE OF SERVICE

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HAWAII RENEWABLE ENERGY ALLIANCE'S POST-HEARING OPENING BRIEF

The Hawaii Renewable Energy Alliance ("HREA") hereby submits this document, constituting its Post-Hearing Opening Brief on the instant docket, dated October 25, 2006, to the Public Utilities Commission ("Commission"), in accordance with the Commission's letter, dated September 28, 2006 regarding "Post-hearing opening and reply briefs."

I. INTRODUCTION

On March 16, 2005, the State of Hawaii Public Utilities Commission ("Commission") filed its Order No. 21698 opening the instant docket ("docket"). On April 14, 2005, the Commission filed its Order No. 21749, which granted the April 4, 2005 motion by the Hawaii Renewable Energy Alliance ("HREA") to intervene in the docket.

Currently, the incumbent utilities have responsibility for the design and implementation of Demand-Side Management ("DSM") programs. Overall, HREA believes it is both timely and appropriate to investigate and implement additional DSM programs and alternative DSM delivery mechanisms, given that there are electricity supply issues in our islands and utility rates continue to increase. As part of the DSM docket, HREA participated with the other parties in collaborative discussions on delivery mechanisms.

Initially, delivery models were presented by HECO (host utility DSM model), Life of the Land (third party DSM utility) and Rocky Mountain Institute (a hybrid model with roles for both the host utility and a third party utility) in their Preliminary Statements of Positions ("PSOPs"). However, since HREA did not support any of these three, we elected to present a fourth HREA proposal entitled "Planning and Implementation of DSM in Hawaii - Competitive Bidding Model," attached as Exhibit A to our Final Statement of Position ("FSOP").

Subsequent to the exchange of FSOPs, the Commission conducted a hearing on the docket issues, during which further information and ideas were considered and discussed, including vibrant exchanges on energy efficiency goals and market structures for overall implementation of DSM, HECO's specific DSM program proposals, and HREA's proposal for encouraging implementation of Seawater Air Conditioning ("SWAC"), a district cooling technology, as part of one of HECO's DSM programs. As an output of the hearing, HREA has reconsidered its FSOP and provides herein a re-stated FSOP.

The remainder of HREA's Post-Hearing Opening Brief consists of HREA's Re-Stated Final Statement of Position, which includes an update of our overall position and specific revisions to our "Competitive Bidding Model," now entitled "Implementing DSM in Hawaii via a Public Benefit Fund Market Structure" (attached as Exhibit A), and a section in support of HREA's proposal for a rebate for SWAC pursuant to HREA's Hearing Exhibit 2.

II. HREA'S RE-STATED FINAL STATEMENT OF POSITION

The following is HREA's re-stated final position on the issues as stated on page 2 in the Prehearing Order of the instant docket:

A. Statewide Energy Policy Issues

(1) Whether energy efficiency goals should be established and if so, what the goals should be for the State?

HREA Position:

HREA Preference for Demand-Side Management Goals. While HREA supports the establishment of energy efficiency goals, we prefer instead the establishment of broader Demand-side Management ("DSM") goals. DSM goals would be more consistent with the IRP Framework definition of DSM Programs, which includes conservation, load management and efficiency resource measures.[1] HREA therefore requests that the Commission establish DSM goals to encompass and address all DSM programs and measures ("hereafter referred to as DSMs") that promote customer and/or system-level savings.[2] Specifically, HREA requests that the Commission establish DSM goals to encourage investments in DSM applications and technologies as follows:

- "Utility-side of the meter" (i.e., the "wholesale market") - *including:*

  1. utility investments in energy efficiency, e.g., measures (retrofits/ replacements) to improve utility-owned generation and transmission and distribution resources, and energy storage to improve the overall system operating efficiency;

  2. utility investments in load management, e.g., pumped-storage for peak-shaving, and commercial, industrial and residential load control measures;

  3. independent power producer (IPP) investments in energy efficiency, e.g., retrofits or replacements to improve IPP generators efficiency; and

- "Customer-side of the meter" (i.e., the "retail market") – including customer investments in:

  1. energy efficiency and power conditioning technologies, e.g., traditional energy-efficient lighting and appliances, lighting control systems, and power conditioning technologies, such as ElectroFlow;

[1] *See* "A Framework for Integrated Resource Planning, Revised May 22, 1992," Public Utility Commission, State of Hawaii, Honolulu, HI.
[2] HREA notes that DSMs can be designed and implemented on both sides of the customer's utility meter.

2. renewable displacement technologies, e.g., solar hot water, solar air conditioning, and seawater district air conditioning systems, and off-grid mechanical water pumping wind turbines;

3. on-site renewable electricity technologies, e.g., customer-sited, grid-connected systems that may be net metered; and

4. on-site conventional systems to supply customer demand for electricity (e.g., diesel generators), electricity and thermal energy (Combined Heat and Power systems), and stand-by power (e.g., emergency generators, which could operate in a "Virtual Power Plant" mode as proposed by the County of Maui).

Note: HREA proposes this break-out of DSM applications and technologies as a "working definition of DSM" for the purposes of the instant docket and IRP.

HREA Requests that the Commission Establish and Implement a DSM Portfolio Standard. To implement the DSM goals as recommended by HREA above, HREA requests that the Commission establish and implement a DSM Portfolio Standard ("DPS"). Overall, the DPS would recognize and incorporate DSMs on both the "utility-side and customer-sides of the meter," as illustrated above. The DPS would complement to our current state Renewable Portfolio Standard ("RPS"). The DPS should also be harmonized with our RPS, and this will require certain revisions to our current State RPS.

Specifically, HREA requests that the Commission propose amendments of the RPS law (H.R.S. §269, Part V) to the legislature for the 2007 session. The primary intent of these amendments is to harmonize RPS with the proposed DPS by removing remove energy-efficiency and other DSM measures (as defined above) currently in our RPS. In doing so, the:

1. RPS would then encompass and address only renewable-electricity-generating technologies that provide wholesale power to the grid,[3] and

[3] It should be noted that this proposal does not reflect the position of HREA member Honolulu Seawater Air Conditioning, LLC ("HSWAC"). HSWAC believes SWAC should continue to be included in the RPS definition of renewables and should continue to be an eligible technology for the purposes of meeting

2. DPS would encompass and address DSM measures on both sides of the meter, as discussed above.

Therefore, the following are HREA's specific recommended "steps" for implementation of a DPS, including with a discussion of our rationale and related actions supporting the establishment of the DPS, including revisions to RPS:

1. Revision of the term "Demand-side management programs" in the IRP Framework. This objective was supported by or commented on by other Parties during the hearing.[4] With respect to the term "Demand-side management programs", the following is the current definition as stated in the IRP Framework:

> "Demand-side management programs" means programs designed to influence customer uses of energy to produce desired changes in demand. It includes conservation, load management and efficiency resource programs.

HREA hereby requests that the Commission revise the IRP Framework definition to read as follows:

> "Demand-side management programs" means programs designed to influence customer uses of energy to produce desired changes in demand. It includes conservation, customer-sited renewable

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RPS requirements because: (1) SWAC is a renewable energy technology that displaces electricity use (as is also the case with solar water heating); (2) energy technologies such as energy efficiency and energy storage should be removed from the RPS and be placed in an energy efficiency or demand side portfolio standard (these technologies are not renewable energy); and (3) it will be more difficult for HECO to meet RPS requirements, for Oahu, without inclusion of renewable energy electricity displacement technologies. However, HSWAC continues to support HREA's position that: (1) DSM programs should be administered by a third party; (2) certain renewable energy technologies, such as SWAC and solar air conditioning, have not been but should be included in utility IRP plans; (3) DSM goals should be established; (4) the definition DSM should be expanded; and (5) a DSM or energy efficiency portfolio standard should be established.

[4] Mr. Reed from HSEA (see Transcripts of Proceedings, Volume 1 at page 164, lines 16 to 22) supported the need for change in the definition and inclusion of self-generation in the definition of DSM, Mr. Hee from HECO (see Transcripts of Proceedings, Volume 1 at page 177, lines 8 to 14), while disagreeing with Mr. Reed's interpretation, suggested such a change would possibly require a change in the IRP Framework, Mr. Kobayashi's question to HECO regarding inclusion of solar hot water as a DSM, but not photovoltaics (see Transcripts of Proceedings, Volume 1 at page 231, lines 17 – 21), Mr. Hee's response for HECO (see Transcripts of Proceedings, Volume 1 at page 238, line 8 to page 233, line 10, disagreed with Mr. Kobayahi's position), and in response to Mr. Hempling's question "what's appropriate to this docket" (see Transcripts of Proceedings, Volume 1 at page 238, lines 15 – 16), Mr. Kobayashi responded "All technologies on the customer side of the meter should be considered to provide utility benefits. I think any arbitrary barrier to exclude certain technologies doesn't make sense, and we've argued that since 1992" (see Transcripts of Proceedings, Volume 1 at page 238, lines 17–21).

energy displacement technologies, renewable energy electricity displacement district energy systems (such as seawater air conditioning district cooling), customer-sited self-generation (including renewables), and load management and efficiency resource programs."

Note: HREA believes that the above proposed new definition addresses the concerns expressed by HSEA and the County of Maui during the hearing. Furthermore, notwithstanding HECO's objections in the hearing, we believe the revisions are consistent with the intent of the existing IRP definition, i.e. the inserted technologies can be implemented as DSM programs to "influence customer uses of energy to produce desired changes in demand." For example, the net impact of a customer-sited solar hot water or a PV system is to reduce the customer's demand. It does not matter that the former is off-setting the need for utility-delivered electricity by heating water with the sun, while the latter is off-setting the need for utility-delivered electricity by generating electricity on-site.

2. Establish and Implement a DSM Portfolio Standard ("DPS"). Given clarification of the definitions of "Demand-side Management Programs" and "DSM," HREA requests that the Commission establish a Demand-side Management Portfolio Standard ("DPS") to implement attainment of DSM goals. Implementation, of course, will require resolution of several important issues, e.g., what entity(ies) should administer the DPS and how should they be regulated, how to define and establish the DPS requirements, and whether the DPS should be the same for each of our islands.

Who Should Administer the DPS? As discussed previously, Act 162 authorized the Commission to consider and establish, if appropriate, a PBF Market Structure ("PBF Structure") as an alternative to the existing utility-led DSM program structure. While we comment in more detail about market structure in our response to Commission question (2) below, for the purpose of the discussion here, we believe structure of the DPS requirement, and how it is applied throughout our island chain, will indeed be influenced by the market structure. For example, one approach may be appropriate for the host utility-led DSM, while another may be more appropriate for a PBF structure.

What should the DPS requirement be and how should be established? HREA supports a DPS of 1% per year of overall electric demand (utility sales) on an on-going basis. We

believe, as we noted in our response to HECO/HREA-FSOP-IR-102 (pages 4 and 5 of our response to IRs, dated July 14, 2006), DPS requirement could be readily met each year over the next 30-year period. However, we would agree that an energy-efficiency goal of 1% could be difficult to accomplish over a 30-year period, given the DSM definition assumed by HECO.

Regarding the market structure, HREA notes that it may be appropriate to establish the DPS for: (1) a HECO-led DSM program based on an IRP-based analysis, such as their Maximum Achievable Potential (MAP) analysis, and (2) a PBF structure based on a competitive bidding process to select the PBF administrator.

How should the DPS requirement be applied? Should there be a "one-size fits all" requirement, or should each island have a different requirement? HREA supports the application of the DPS to each of our island utilities, i.e., in this case, HREA believes one-size fits all. However, HREA anticipates, since each island utility has different load profiles and demand requirements, the approach to meeting the DPS would likely be different for each island. For example, if the Commission were to select a PBF administrator via a competitive bidding process, the Commission could specify a minimum DPS requirement, such as 1% per year. Given that, winning bidder might be able to show how that requirement could be meet on all islands, and perhaps exceeded on one or more of the islands.

3. Prepare and submit recommendations to the state legislature for revision of the state's RPS law. HREA notes there was limited discussion during the hearing on the possible interaction between a DPS (or energy efficiency goals) and RPS. Despite this, HREA believes it was generally recognized by the Parties that establishment of separate DSM (or energy efficiency) goals would likely require revisions to the RPS law.

Given that HREA supports and requests that the Commission recommend to the legislature appropriate amendments to our current RPS law,[5] HREA recommends that the current law be revised to remove all elements and references to: (a) energy efficiency, and

[5] As amended during the 2006 session by Act 162.

(b) customer-sited renewables (including displacement and electricity generating technologies), as these technologies are to be incorporated into the DPS. Specifically, HREA recommends the revisions as noted below[6].

(2) What market structure(s) is (are) the most appropriate for providing these or other DSM programs (e.g., utility-only, utility in competition with non-utility providers, non-utility providers)?

HREA Position:

In Support of a Public Benefits Fund Market Structure. Per the legislative intent as expressed in Act 162 of the 2006 session, HREA supports the establishment of a Public Benefits Fund ("PBF") and a PBF Administrator for the implementation of "energy-efficiency and demand-side management programs and services" ("PBF programs"). For the purpose of discussion herein, HREA will refer to this market structure as the "PBF Market Structure." Per Act 162, the PBF Administrator is to be appointed by the Commission after "satisfying qualification requirements established by the Commission," and the PBF Administrator cannot be an "electric public utility or an electric public utility affiliate." The PBF Administrator is to be regulated by the Commission with its duties established by Commission rule or order. PBF

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[6] HREA recommends the following revisions implemented by Act 162, but not yet in the HRS.

(i) delete sub-paragraphs 1. (2) and 1. (3) from the definition of "renewable electrical energy" in §269-91 – Definitions. These sub-paragraphs (as stated in Section 4 of Act 162) read as follows:

> "(2) Electrical energy savings brought about by the use of renewable displacement or off-set technologies, including solar water heating, seawater air-conditioning district cooling systems, solar air-conditioning, and customer-sited, grid-connected renewable energy systems; or
>
> (C)[sic] Electrical energy savings brought about by the use of energy efficiency technologies, including heat pump water heating, ice storage, ratepayer- funded energy efficiency programs, and use of rejected heat from co-generation and combined heat and power systems, excluding fossil-fueled qualifying facilities that sell electricity to electric utility companies and central station power projects."

(ii) delete sub-paragraph (b) (1) in §269-92 – Renewable Portfolio Standards, as stated in Section 5 of Act 162, which reads as follows:

> "(1) At least fifty per cent of the renewable portfolio standards shall be met by electrical energy generated using renewable energy as the source;"

(iii) delete the phrase "or displaced" from sub-paragraph (b) (2) in §269-92 – Renewable Portfolio Standards, as stated in Section 5 of Act 162, which reads as follows:

> "(2) Where electrical energy is generated or displaced ("underline" is added to emphasize) by a combination of renewable and nonrenewable means, the proportion attributable to the renewable means shall be credited as renewable energy; and"

administrator's budget is limited to be no more than ten percent (or other reasonable percentage determined by the Commission) of the PBF in costs to administer the PBF programs.

HREA believes the "PBF Market Structure" should be established and implemented to facilitate a competitive market, whereby the PBF Administrator works closely with energy service providers competing to supply DSM technologies and measures to customers and coordinates with the host utility on the PBF programs. HREA believes the PBF Administrator, as a non-utility entity, will be in a better position to achieve the benefits of competition at lower administrative costs than the host utility.

Benefits of the PBF Market Structure. HREA believes implementation of the PBF market structure will provide significant benefits including:

- Realignment of Host Utility Objectives and Incentives. Today, there is an inherent conflict between the Investor Owned Utility's (e.g., HECO) motivation to earn more profits by selling more electricity, while encouraging customers through DSMs to use less electricity.[7] This inherent conflict would be removed with the implementation of the PBF market structure for all DSM. Given that, HECO would proceed with its business of delivering electricity to meet the demand of its customers unfettered with the conflicting goal of providing DSM services.

Note: HREA is open to HECO's participation in DSM under contract to the PBF administrator and/or to HECO's provision of certain DSM programs and services deemed outside the scope of the PBF administrator. As an example of the latter, HREA could support HECO administration of DSM programs and services on the "utility-side of the meter," while the PBF administrator would administrator the DSM programs and services on the "customer-side of the meter." See additional discussion in Exhibit A to this document.

[7] HREA does not believe this inherent conflict exists for KIUC. Given that and the Parties' discussions on May 11, 2006, it was agreed that "Alternate market structures will not apply to KIUC provided that KIUC hires a DSM consultant and/or consults with a third party DSM administrator (or fund administrator) if and when formed," per meeting notes by C. Freedman.

- Ratepayer Benefits. HREA believes there are opportunities for the PBF Administrator to deliver DSMs at lower administrative costs, i.e., more of the PBF could be provided to ratepayers/customers in the form of rebates and other incentives to invest in DSM measures. For example, HECO's administrative costs to date have been on the order of fifty percent of the total DSM program costs, i.e., only 50% of the available funds have gone to customers. Whereas in Vermont and Oregon where PBFs and non-utility administrators have been established, Efficiency Vermont and Energy Trust of Oregon respectively, administrative costs are approximately ten per cent of the available funds.[8] Thus, HREA believes implementation of PBF Market Structure in Hawaii will result in lower administrative costs than HECO's administrative costs for DSM. As further evidence of potential lower cost options, see Exhibit B, which compares Hawaii's DSMs with mainland DSMs; and
- Increased Customer Choice. HREA believes a PBF Market Structure will reveal more DSM options for customers. In part, the PBF administrator will be highly motivated to explore and implement all possible DSMs, which will result in a wider range of DSM options. HREA observes that HECO's DSM programs have been limited, in large part, due to the inherent conflict identified above. Moreover, IRP advisory group members, including HREA, have been repeatedly disappointed and frustrated when group members

[8] Personal Communications (Energy Trust of Oregon) – October 19, 2006: overall administrative costs are tracked by program and are below 11 percent of annual revenue from the Public Benefit Fund. For some programs, administrative costs have been higher, e.g., 20% for customer-sited wind (i.e., 80% in incentives) and 25% to 30% (i.e., 70% to 75% in incentives) for support of customer-sited PV. Also, the Energy Trust staff, currently at 38, is supported by outside contractors, in addition to the Energy Service Provider that actually installs most of the DSM measures.

have proposed alternative DSM programs, such as for SWAC, and HECO has not included them in their IRP.

Implementing the Public Benefits Fund Market Structure. During the hearing, questions were raised by various Parties about whether it would be feasible to select the PBF Administrator (which was alternately referred to as a "DSM Utility" or a "Third Party Administrator") via a Commission-administered competitive bidding process, as proposed by HREA in its FSOP.

Given that the market pool for PBF Administrators may be "thin" as suggested by HECO during the hearing, HREA requests that the Commission consider foregoing a competitive bidding process, as proposed by HREA in its FSOP, and proceed to appoint a PBF Administrator as authorized in Act 162. After a review of PBFs already implemented on the mainland, HREA believes the Energy Trust of Oregon serves as a good model for Hawaii to consider. See Exhibit A for background information on the energy trust and HREA's recommendations for applying the Energy Trust of Oregon model to Hawaii. Specific recommendations include the following steps for establishing a non-profit corporation in Hawaii as the PBF Administrator:

1. Prepare Framework for the PBF Market Structure
2. Appoint and Fund a Board of Directors
3. Negotiate and Award Initial Contract
4. Select an Executive Director and Key Staff
5. Solicit Input from Stakeholders
6. Prepare proposal for contract extension
7. Negotiate and approve a contract extension
8. Initiate Operations

(3) For utility-incurred costs, what cost recovery mechanism(s) is appropriate (e.g., base rates, fuel clause, IRP Clause)?

HREA Position:

Given HREA's position on issue (2) – market structure, HREA supports recovery of utility–incurred costs via a PBF, rather than in base rates, the fuel clause or IRP clause.

(4) For utility-incurred costs, what types of costs are appropriate for recovery?

HREA Position:

Given HREA's position on issue (2) – market structure, HREA supports the HECO's recovery of Commission-approved, HECO-administered DSMs via a PBF. The allowable costs would include costs associated with coordination within IRP with a PBF administrator.

In the case of KIUC, HREA supports recovery of DSM costs via a PBF.

(5) Whether DSM incentive mechanisms are appropriate to encourage the implementation of DSM programs, and, if so, what is the appropriate mechanism(s) for such DSM incentives.

HREA Position:

HREA supports DSM incentives to encourage customer investment in DSMs, such as rebates for purchase and installation of DSMs. However, we do not support continuation of HECO's recovery of lost margins and shareholder incentives.

HREA debates whether lost margins will actually contribute to utility rate increases, and defers to the judgment of the Commission in future rate cases.

B. HECO's Proposed DSM Programs Issues

We stated in our preliminary response to HECO's proposed Interim DSM programs,[9] dated January 10, 2006, "HREA prefers that HECO not start any new DSM programs, pending the results of the instant docket." At that time, we also recommended "that HECO explore and implement all approaches to expand or enhance existing DSMs that would not require formal PUC approval, or that could implemented readily, e.g., on a pilot basis."

[9] We also included these comments in our Preliminary and Final Statements of Position.

Overall, we have re-examined these stated positions between the submittal of the FSOPs and the hearing. We have concluded that we do need to take into consideration the impact of intervening circumstances which have resulted in impending capacity shortfalls on the islands of Oahu and Maui, and the steady rise of oil prices, both of which reinforce our need to reduce our dependence on imported oil and implement DSM measures to off-set capacity needs that may not be met in time with planned new generation.

Thus, Mr. Bollmeier emphasized in his closing remarks the need for an all-out effort on Oahu and Maui to reduce demand, while laying the foundation for an aggressive long-term DSM agenda. For the remainder of this section, we will focus on the near-term efforts to reduce demand, while proceeding on a parallel path to establish and implement the PBF Market Structure proposed herein.

Short-Term, Aggressive DSM Effort. HREA believes there are peak load reductions of up to 200 MWs or more on Oahu and lesser amounts on Maui, some of which, if not all, may require an expedited review and modification of current draft IRPs or case-by-case approvals. Overall, HREA recommends that the Commission direct the utility to:

1. Aggressively implement its HECO's proposed programs on an interim basis for 3 to 5 years (more solar hot water, max out efficient lighting, interruptible load control, etc.) – we believe this could yield up to 25 MW in load reductions;
2. Implement an appropriate DSM program to support SWAC systems on Oahu (up to 16 MW reduction by 2010);[10] and
3. Solicit for competitive bids to implement peak demand reductions via all DSM, including all potential distributed energy resources (e.g., customer-sited renewables, virtual power plant, CHP, power conditioning, etc.) – we believe the potential here is 50 to 100 MW.

[10] See additional discussion on SWAC at the end of this section.

Short-Term Supply-Side Alternatives. In addition, we request that the Commission consider directing HECO to:

1. Partner with industry and landowners to site at least one 50 MW pumped hydro storage facility for peak-shaving and other benefits;
2. Partner with industry and landowners to site at least one 50 MW parabolic dish trough system with gas back-up; and
3. Seek possible pilot project introductions of newer technologies, such as solar air conditioning, wave energy, and OTEC systems.

Specific Response to the Commission's questions on HECO's DSM programs. The following is our re-stated position on questions (6) to (9) from the Commission.

(6) Whether the seven (7) Proposed DSM Programs (i.e., the CIEE, CINC, CICR, REWH, RNC, RLI, and ESH programs), the RCEA program, and/or other energy efficiency programs will achieve the established energy efficiency goals and whether the programs will be implemented in a cost-effective manner;

HREA Position:

HREA observes that the benefits provided by and success of the REWH and RNC programs are well-established. We do continue to have concerns about the commercial/ industrial DSM programs (CIEE, CINC and CICR). As stated during the hearing, we do not believe all potential DSM technologies are being treated equitably. We also recognize that HECO disagrees with our position. To move forward on this issue, we ask all parties to consider that HECO's programs may have been designed to attract demand/energy savings for the "lowest dollar possible." While that approach has work fairly well to date, HREA observes that the real costs of DSM options follow a supply curve where the price to achieve greater amounts of DSM will typically increase.

We can see evidence of that theory at work given the approach used on the REWH program, where higher rebates have been required to penetrate this "harder-to-reach" market. So, from our perspective, the rebates currently being offered by HECO for seawater air

conditioning (SWAC) are not only not commensurate with their benefits, they may be too low to reach what is a new market segment in Hawaii. We anticipate this may also be an issue as solar air conditioning systems are introduced to Hawaii. See also our comments on the Parties' Statements of Position on HREA's Proposed Rebate Program for SWAC in Section III.

(7) If utility-incurred costs for the programs in issue 6 are to be included in base rates, what cost level is appropriate, and what the transition mechanism for cost recovery will be until the respective utility's next general rate case;

HREA Position:

HREA prefers cost recovery of utility-incurred costs for the programs in issue 6 via a PBF rather than in base rates.

(8) Whether HECO's proposed DSM utility incentive is reasonable, and should be approved, approved with modifications, or rejected;

HREA Position:

HREA cannot support HECO's recovery of lost margins or shareholder incentives for implementing DSMs.

(9) Which of the Proposed DSM Programs, the RCEA Program, and/or other energy efficiency programs should be approved, approved with modifications, or rejected

HREA Position:

HREA is now open to approval of these new programs on an interim, pilot basis.

III. HREA STRONGLY SUPPORTS THE HEARING EXHIBIT 2 REBATE REQUEST FOR SEAWATER AIR CONDITIONING.

The Commission should grant HREA's request for a rebate for seawater air conditioning ("SWAC") not only because the rebate is cost-effective and satisfies stringent rebate program requirements, but also because an incentive is needed to fulfill the overriding public policy of encouraging building owners to switch from fossil fuels to renewable energy. Simply put, rebates provide an incentive. An incentive is needed to encourage widespread adoption of renewable energy, such as SWAC. Without such an incentive, it may be difficult at best for utilities to fulfill their public mandate to foster use of renewable energy and reduce Hawaii's

dependence on foreign oil. An incentive for SWAC, which will greatly increase Hawaii's energy independence, is therefore appropriate and justified.

On August 31, 2006, in conjunction with an evidentiary hearing on the docket, the Commission admitted into the record HREA's Hearing Exhibit 2 ("Hearing Exhibit 2"). Hearing Exhibit 2 requests the Commission to require HECO to include seawater air conditioning ("SWAC") in one of HECO's rebate programs ("rebate"). The rebate amounts sought are $500 per ton rebate for SWAC district cooling systems and $500,000 per customer rebate limit (collectively, "rebate"). The docket parties and participants have exchanged information, and HREA has provided confidential data and information subject to a protective order, in support of the requested rebate.[11]

Pursuant to the docket, the Commission may require HECO to provide rebates to potential SWAC customers. The Commission's decision is guided by various legal, administrative, and policy considerations, which essentially constitute a test for the granting of rebate requests. Under such a test, a rebate is appropriate, and the request for a rebate should be granted, if it is shown that: (1) potential customers require an incentive to adopt the technology; (2) the rebate amount is sufficient to create such an incentive; (3) the rebate offer is appropriately timed to provide an incentive to prospective customers; and (4) the technology generally satisfies the utility's applicable rebate program requirements.

As discussed below, HREA's rebate request for SWAC should be granted because it satisfies all four of these requirements. First, HECO concurs that potential customers require an incentive, in the form of a rebate, to adopt SWAC. Second, the requested rebate amount is sufficient to create an incentive for potential customers to adopt SWAC. Third, if the rebate is

[11] On September 8, 2006, Information Requests ("IR") were filed by Life of the Land ("LOL"); the Hawaiian Electric Company, Maui Electric Company, and Hawaii Electric Light Company (collectively, "HECO"); and the State of Hawaii Consumer Advocate ("CA"). On October 6, 2006, the Commission approved and filed Protective Order No. 22929, Stipulation for Protective Order and Exhibit A ("Protective Order"). On October 10, 2006, HREA filed its Supplemental Response to the LOL, HECO, and CA IRs with confidential information subject to the Protective Order. On October 6, 2006, HREA, HECO, the CA, LOL, and the Hawaii Solar Energy Association filed their position statements.

offered in the near future, it will be timed to provide an incentive to prospective SWAC customers who at this time are actively considering contracts for service. Fourth, SWAC technology generally satisfies HECO's Consumer and Industrialized Customized Rebate ("CICR") and Commercial and Industrial Energy Efficiency ("CIEE") rebate programs.

A. Potential Customers Require an Incentive to Adopt SWAC.

An economic incentive in the form of the requested rebate is required to ensure that building owners who are prospective SWAC customers switch from fossil fuel-based air conditioning to seawater air conditioning. Neither HECO nor any other docket party or participant has argued an incentive is not required. To the contrary, HECO has stated its position before the Commission that "sea water air-conditioning, if shown to be cost-effective, should be eligible for demand-side management ("DSM") program rebates."[12]

The purpose of DSM rebates is to provide incentives.[13] Potential customers must pay significant costs to connect to the SWAC system. An incentive is needed to pay these interconnection costs and to overcome the many other market barriers.[14] Finally, an incentive is necessary and appropriate for all of the same reasons such incentives have been regularly employed for many years by a large number of utilities, including HECO, to provide market stimulation for energy efficiency technologies.

B. The Requested Rebate Amount Is Sufficient To Create An Incentive.

Based on the record before the Commission, the requested rebate amount of $500 per ton will create an incentive for potential customers to adopt SWAC technology. Anything less

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[12] *See* HECO's Statement of Position on Hawaii Renewable Energy Alliance's Seawater Air Conditioning Project, filed Oct. 6, 2006 ("HECO position statement") at 4.

[13] According to HECO, the goal of DSM programs is "to encourage customers to optimize their facility design . . . by providing an incentive to offset the incremental cost." *See* HECO Customized Incentives Application.

[14] As the Hawaii Solar Energy Association explained in its position statement filed October 6, 2006: "DSM rebates must be sufficiently attractive to move markets at very different stages of sophistication, development and maturity. In the case of SWAC, where no Downtown Honolulu customer has any direct experience with the technology, the rebate structure must be appropriate to overcome the most commonly heard objections and barriers to near-term participation." *Id.* at 4.

than $500 per ton may fail to create the required incentive for some customers to move to renewable energy.

1. The $500 per ton rebate amount is sufficient to create an incentive.

Potential SWAC customers must pay significant costs to connect to the SWAC system. An incentive is needed to pay these interconnection costs. An incentive is also needed to overcome a long list of other market barriers.[15]

Rebates generally should be directly proportional to utility system benefits, and widespread use of SWAC on Oahu will provide system benefits far in excess of $500 per ton. For example, one ton of SWAC provides utility system benefits equivalent to those provided by solar water heating systems, the rebate for which is $750 (HECO proposes to increase the rebate to $1,000).

The $500 per ton rebate for SWAC systems, which represents approximately 12% of the cost differential between conventional air conditioning and SWAC systems, is also well within the acceptable range of cost differentials for HECO rebates. HECO offers rebates on other technologies which represent 23% to 100% of the technology's cost differential. For example, HECO provides a rebate representing 30 to 45% of the differential cost for T8 fluorescent lighting, a well established commercial and industrial DSM measure with a simple payback of 1.4 to 2.1 years.

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[15] In addition to interconnection costs, other market barriers include: insufficient information to make informed choices; new technologies (SWAC) competing with mature technologies (conventional AC); inadequate information about all of customers' own cost components for conventional AC; inadequate information about comparative performance and costs; uncertainty regarding future benefits from efficiency investments; lack of experience with and knowledge about district energy systems, in general, and SWAC systems, in particular; perceptions about difficulties in permitting of SWAC projects (e.g., permitting time, costs, project impacts); uncertainties about future energy prices; uncertainties about availability and amount of potential utility rebates; uncertainties about timing and availability of SWAC systems; desire or need to let others go first; short term (1- to 5-year) approach to budgeting rather than life-cycle cost approach; inconsistent application of budgeting procedures; predominance of payback period as a decision-making tool; preference for lower initial costs than lower life-cycle costs; customers that can pass on increases in energy costs to tenants may also lack an incentive to change, even though investment in renewables, such as SWAC, would stabilize prices over the longer term; organizational inertia and resistance to change; energy efficiency projects are perceived to be more risky; and resistance to long-term contracts.

2. HECO's proposed $150 to $230 per ton rebate amount is not sufficient to create an incentive.

Despite the well-documented need for a rebate amount of $500 per ton, in its position statement HECO proposes a rebate of in the range of $150 to $230 per ton – less than half the requested amount. HECO's proposed rebate amount is not sufficient and should be rejected.

HECO does not dispute that interconnection costs are estimated to be approximately $300 per ton.[16] The proposed $150 to $230 per ton amount is less than $300 per ton. It therefore will not provide sufficient incentive. For the same reason, the $150 to $230 per ton amount will not provide sufficient incentive to overcome other market barriers to widespread adoption of SWAC in addition to interconnection costs.

Nor is the proposed $150 to $230 per ton rebate amount directly proportional to utility system benefits. As discussed above, widespread use of SWAC on Oahu will provide system benefits in excess of $500 per ton, as demonstrated by the fact that one ton of SWAC provides utility system benefits equivalent to those provided by solar water heating systems which are eligible for a $750 rebate.

In addition, the proposed $150 to $230 per ton rebate amount is far below the rebate amount derived from calculations of per ton rebate amounts, under the CICR and CIEE rebate programs, based on average incentive cost, capacity savings, and energy savings. The average incentive cost for all DSM programs during the 2009 to 2010 period,[17] is $0.135/kWh and $338/kW.[18] Applying this average incentive cost, the projected energy savings,[19] and

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[16] The rebate requests $500 per ton, rather than $300 per ton, because potential customers require sufficient incentive not only to pay significant interconnection costs but also to overcome other market barriers to widespread adoption of SWAC. *See* note 15, *supra*.

[17] This is the time period the Downtown Honolulu SWAC system will become fully operational.

[18] *See* Exhibit A to Hawaii Renewable Energy Alliance's Supplemental Response to Post-Hearing Information Requests from Life of the Land, HECO/MECO/HELCO, and the Consumer Advocate on HREA Hearing Exhibit No. 2 filed Oct. 10, 2006 ("HREA Supplemental Response"). The average rebate cost per kWh saved (first year) and per kW saved is calculated as follows: (1) $/kWh saved = Total Incentive Costs / (kWh saved +2,500 x kW saved); and (2) $/kW saved = 2,500 x $/kWh saved.

[19] See Hawaii Renewable Energy Alliance's Response to Post-Hearing Information Requests from Life of the Land, HECO/MECO/HELCO, and the Consumer Advocate on HREA Hearing Exhibit No. 2 filed September 22, 2006 at 6.

estimated capacity savings of 0.63 kW/ton[20] yields a SWAC rebate amount under the CICR program of $631/ton. A similar analysis under the CIEE Program, with an average incentive cost of $0.107/kWh and $266/kW, yields a rebate amount of $497/ton. Both are higher than HECO's proposed rebate.

Finally, the proposed $150 to $230 per ton rebate amount is at odds with HECO's demonstrated commitment to providing higher rebate amounts to promote related energy efficiency technologies. On June 8, 2006, HECO issued a press release, "HECO doubles rebates for some business energy-efficiency upgrades," which indicated that HECO "has doubled rebates for businesses that install some energy efficiency technologies to encourage more participation in programs that save money for the businesses and reduce electricity demand for all of Oahu."[21] One of the technologies for which the rebate has been doubled is an energy efficient air-conditioning system.

3. The requested $500,000 per customer rebate limit is sufficient to create an incentive.

The Commission should grant HREA's requests for a $500,000 per customer rebate limit. The $500,000 per customer rebate limit is sufficient to provide incentive to larger prospective customers with relatively high interconnection costs due to relatively high cooling demand of greater than 1,000 tons. It is estimated a relatively small percentage of customers will seek rebates totaling $500,000 or close to that amount. For those customers, the rebate will continue to serve as an incentive even if it is paid to the customer over a period of years, rather than in one year. HECO's proposed $350,000 per customer rebate limit is not sufficient to create the required incentive.

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[20] This is HREA's calculated peak day daytime demand reduction. HREA believes that this figure accurately represents actual utility system benefits.

[21] *See* Hawaiian Electric Company, Inc. News Release, "HECO doubles rebates" (June 6, 2006), available at: http://www.heco.com/portal/site/heco/menuitem.508576f78baa14340b4c0610c510b1ca/?vgnextoid=233f5e658e0fc010VgnVCM1000008119fea9RCRD&vgnextfmt=default (last visited Oct. 19, 2006).

C. The Requested Rebate Is Appropriately Timed to Provide an Incentive to Prospective SWAC Customers.

HSWAC's $120 million downtown Honolulu seawater air conditioning project is "real" and the rebate is needed now. The construction start date is December 1, 2007. HSWAC seeks signed customer contracts between now and December 1, 2007. Downtown SWAC commercial service is expected in mid-2009. Environmental permitting, environmental impact review, final engineering, system construction and customer interconnections are scheduled to be completed by December 2007. At this time, prospective SWAC customers are actively evaluating SWAC and considering whether to enter into service agreements. Thus, the rebate is needed immediately and the rebate request is timed to provide an immediate incentive. Assuming the rebate is offered for a period extending over the next several years, the rebate request is also timed to provide an incentive to customers who may adopt SWAC at a later date.

Honolulu Seawater Air Conditioning, LLC ("HSWAC") is highly experienced, well financed, and capable of installing and operating a SWAC system for potential customers. HSWAC was founded by Market Street Energy Company, LLC, of Saint Paul, Minnesota. Market Street has been the product of the nation's most successful public/private energy partnership for over 25 years and is a highly experienced leader in the design, operation and management of renewable energy systems. Market Street personnel developed Europe's largest SWAC project in Stockholm, Sweden with approximately 80,000 tons of air conditioning load.

HSWAC's system to provide up to 25,000 tons of cooling in the downtown Honolulu area ("Downtown SWAC project")[22] is well underway. HSWAC has taken numerous concrete steps toward successful completion of the project and toward further widespread development of

[22] *The Downtown SWAC project consists of a seawater distribution pipe extended offshore to a depth of 1,600 feet to obtain 45° F cold water; a cooling station, where the cold ocean water is pumped through corrosion-resistant alloy heat exchangers to chill a freshwater distribution system; and a freshwater distribution system that circulates the chilled freshwater to customers' buildings, where it is used for air conditioning. HSWAC seeks to develop a similar SWAC system for Waikiki with a planned construction start date of 2010.*

SWAC in Hawaii. HSWAC began preliminary work on the Downtown SWAC project in Honolulu in November 2003, nearly three years ago. To date, it has spent approximately $3 million on the project. HSWAC has secured State legislature authorization for $80 million in tax-exempt Special Purpose Revenue Bonds for the project.

HSWAC has signed letters of intent with customers and retained expert consultants. HSWAC has retained Makai Ocean Engineering to design and engineer ocean pipes, the Honolulu office of The Environmental Company to obtain environmental permits and approvals, and a Honolulu law firm to provide legal services. HSWAC has met with top officials from the administrations of Governor Lingle and Mayor Hannemann. HSWAC has identified potential customers with over 48,000 tons of cooling demand, formally solicited prospective customers since November 2005, secured signed Letters of Intent from approximately 25% of the 20,000 ton break-even point for the project, and provided proposals and draft contracts to forty-two potential customers representing half of the total market potential in the Downtown area.

The Consumer Advocate's recommendation in its October 6, 2006 position statement that the Commission "proceed with its review of the current DSM programs, excluding the SWAC proposal," and defer SWAC to HECO's 4th IRP, appears to be based on lack of the foregoing information about the advanced status of the Downtown SWAC project.[23] Based on the time required to complete HECO's 2nd and 3rd IRPs, deferring the proposed rebate to the 4th IRP is likely to result in a final decision on the rebate in 2011 or 2012 – five or six years from now. As discussed above, however, the rebate is needed now and the rebate request is timely. Deferring the requested rebate to the 4th IRP will ensure only that the utility's acknowledged support for SWAC will not extend to a timely and needed rebate incentive for customers to switch from fossil fuels to renewable energy. Given the detailed confidential information recently submitted by HREA, and the Consumer Advocate's expressed support for the many

[23] See Division of Consumer Advocacy's Comments on Hawaii Renewable Energy Alliance's Sea Water Air Conditioning Proposal filed Oct. 6, 2006 ("Consumer Advocate position statement") at 6-7.

benefits to businesses and consumers from renewable energy, HREA submits the only reasonable course of action is to act upon the rebate request now before the Commission.

D. The Rebate Request Generally Satisfies HECO's CICR and CIEE Rebate Programs.

A rebate is also appropriate because the Hearing Exhibit 2 rebate request satisfies the technical and policy-based requirements of the HECO rebate programs. These requirements include that the rebate be cost-effective and that the rebate be administered through the appropriate HECO rebate program in part so that the proper type of rebate, custom or prescriptive, is employed.

1. The Requested Rebate Is Cost-Effective for Customers and for HECO Rebate Programs.

HREA has submitted ample confidential information to the Commission and all parties and participants establishing that the requested rebate is cost effective. Pursuant to the Stipulated Protective Order entered by the Commission in this matter on October 6, 2006, HREA designated certain data and spreadsheets in Exhibits A-D to the HREA Supplemental Response as confidential.[24] The electronic files provided include up to 30 pages of material each. As a convenience, summaries were also provided in hard copy format totaling 13 pages. Cost and performance data to evaluate cost effectiveness have been provided in Exhibit D. A spreadsheet has been provided to allow the parties and participants (including the Consumer Advocate) to verify cost-effectiveness by conducting sensitivity analyses of the effect of changes to the various parameters.

The confidential information submitted by HREA is responsive to the Consumer Advocate's suggestion in its October 6, 2006 position statement that it lacked sufficient

[24] These exhibits were attached to the Supplemental Response in a separate envelope marked "CONFIDENTIAL – SUBJECT TO PROTECTIVE ORDER" and each page containing confidential information was marked in the same manner.) Electronic files of the complete spreadsheets were provided on an enclosed CD labeled "HREA Supp. Response Exhibits A-D, CONFIDENTIAL – SUBJECT TO PROTECTIVE ORDER."

information to evaluate the rebate's cost effectiveness.[25] The Consumer Advocate's position statement lists nine bullet-point examples of information it claims HREA failed to provide that is necessary to evaluate the rebate request.[26] The Consumer Advocate's position statement, however, was filed prior to Commission approval and filing of the protective order, pursuant to which HREA subsequently provided the confidential information to the Consumer Advocate and other parties and participants.

This subsequent confidential information directly responds to six of these nine items. With regard to the remaining three items, the Consumer Advocate requests the "Annual usage of existing air conditioning in ton-hours for the buildings to be served by the SWAC central chiller plant. (HECO-IR-101-e.)" As noted in previous filings, the composite average ton-hours for the 25,000-ton Downtown SWAC system is estimated to be 101,450,000 ton-hr/yr.

The Consumer Advocate also requests "[t]he list of buildings that contain potential customers for the chilled water from the SWAC plant (CA-IR-2)" and "[t]he type of equipment that each customer would need to install in order to utilize chilled water from the SWAC plant, and the cost to operate and maintain that equipment (CA-IR-5)." HREA has provided this information in the form of two half-page diagrams, depicting the type of equipment customers would need to install, on page 28 of HREA's September 22, 2006 response to the LOL, HECO, and CA IRs. As to the list of buildings, cost effectiveness may be established without reference to specific customer information. For example, the comparative performance and utility system benefits of SWAC may be ascertained without specific information about conventional customer cooling systems to be replaced.[27] In addition, such information is simply not available for

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[25] Division of Consumer Advocacy's Comments on Hawaii Renewable Energy Alliance's Sea Water Air Conditioning Proposal filed Oct. 6, 2006 ("Consumer Advocate position statement").

[26] *See Consumer Advocate position statement* at 7-9.

[27] For example, variations between buildings will have minimal effect on the evaluation of SWAC system benefits. The Downtown SWAC project is expected to involve approximately 40 customer buildings. The average size of these customers is approximately 625 tons. A 20% variation in the performance of a typical customer would have only a 0.5% (= 2.5% x 20%) impact on the entire system. Thus, each average size customer has a relatively small effect on composite system performance. This same

potential customers who have not entered into binding contracts. Nor have actual or potential customers have authorized the release of such information.

The rebate is cost effective not only for prospective customers, but also for HECO's DSM programs. The following tables A-1 and A-2 demonstrate that the marginal cost of adding SWAC to HECO's DSM rebate programs is well within acceptable limits and . The requested SWAC rebate is therefore cost effective as regards the rebate programs.

Table A-1: HECO's Total DSM Program Costs – With and Without SWAC[28]

Case	Net Present Value of Total Program Costs	Net System Energy Savings	Net System Peak Demand Savings	Net Present Value Cost[29]	
Units	million $	million kWh	MW	$/kWh	$/kW
HECO's Baseline DSM	221.6	559.9	157.6	0.232	581
HECO's Baseline DSM + 25,000 tons of SWAC	229.1	605.8	164.2	0.225	563
HECO's Baseline DSM + 100,000 tons of SWAC	240.6	768.9	184.3	0.196	489

performance variation for even a relatively large (i.e., 2,000-ton customer) would have only a 1.6% (= 8% x 20%) impact on total system performance.

[28] Both tables were prepared from pages 11-14 of "Hawaii Renewable Energy Alliance's Response to Post-Hearing Information Requests From Life of the Land, HECO/MECO/HELCO, and the Consumer Advocate on HREA Hearing Exhibit No. 2" filed September 22, 2006.

[29] The average Total Program Cost per kWh saved (first year) and per kW saved is calculated as follows: (1) $/kWh saved = Total Program Costs / (kWh saved +2,500 x kW saved); and (2) $/kW saved = 2,500 x $/kWh saved.

Table A-2: Marginal Costs of Adding SWAC to HECO's DSM Programs

Case	Increase in Net Present Value of Total Program Costs	Increase in Net System Energy Savings	Increase in Net System Peak Demand Savings	Marginal Cost of Adding SWAC	
Units	million $	million kWh	MW	$/kWh	$/kW
HECO's Baseline DSM + 25,000 tons of SWAC	7.4 (+3.4%)	45.9 (+8.2%)	6.7 (+4.2%)	0.119	297
HECO's Baseline DSM + 100,000 tons of SWAC	18.9 (+8.5%)	209.1 (+37.3%)	26.7 (+16.9%)	0.069	172

2. The CIEE Program Is Most Appropriate for the Rebate Because it Employs a Prescriptive Rebate.

SWAC is a good fit for the CIEE Program because it will replace cooling already targeted by that program. It is estimated to require eight years to develop 100,000 tons of SWAC beginning with the first system (25,000 tons in Downtown Honolulu) in 2009. Approximately 12,500 tons/year of SWAC will therefore be developed over the period of 2009–2016. SWAC will likely replace 12,500 tons/yr (of 25,740 ton/yr) of cooling in the CIEE program (i.e., the proportion of customers who previously may have considered replacing existing chillers with more efficient chillers). SWAC will also improve the CIEE program by providing relatively low marginal costs for kW and kWh savings and low implementation costs due to the involvement of private developers such as HSWAC.

In addition, the CIEE Program contains a High Efficiency Cooling component for potential customers of higher efficiency chillers in commercial and industrial settings. These same customers use are potential SWAC customers. Therefore, it is appropriate for the SWAC rebate to be provided by the CIEE Program.

By contrast, the CICR Program is not appropriate for SWAC systems. Most importantly, unlike the CIEE Program the CICR Program does not utilize a prescriptive rebate. Prescriptive

rebates are appropriate for SWAC systems. The Downtown SWAC project does not fit the criteria for the CICR Program set forth by HECO in its position statement:

> The CICR Program was designed to encompass the installation of energy efficient equipment not specifically identified in any of the other prescriptive DSM programs. These include DSM measures that are not widely available in the market and where HECO does not have previous experience documenting the measure savings. As discussed in HECO T-11, Docket No. 04-01 13, at page 32, '(t)his program was developed to address the large number of DSM measures that are available, which, due to the limited potential size of the market for these measures or to the site-specific savings resulting from their installation, do not lend themselves to a prescriptive rebate program design. These measures include the redesign of air conditioning systems and the installation of controls on various energy using systems."

Id. at 4-5 (emphasis added). The Downtown SWAC project is not a custom, unique, building-specific measure that is "not widely available." Rather, upon implementation it will serve a district encompassing several dozen buildings and thus will be "widely available." For the same reason, there is no "limited potential size of the market" rendering the project unfit for a prescriptive rebate program. In fact, the estimated potential for SWAC development on Oahu is 100,000 tons, four times the potential market size of the Downtown SWAC project under development. Nor is the project a "redesign of air conditioning systems." SWAC simply provides an alternative source of the chilled water that is currently used for cooling potential customers' buildings. The need for chillers and cooling towers will be eliminated. However, buildings will continue to use their own chilled water distribution and air handling systems. No "redesign of air conditioning systems" is required.

In addition, the CICR Program requires pre- and post-installation monitoring to verify energy efficiency benefits. No such monitoring is appropriate for SWAC systems. Pre-installation monitoring is not appropriate because the energy efficiency benefits of similar SWAC systems are well documented.[30] Post-installation monitoring is also not appropriate. As part of

[30] Seawater and lake water cooling technology is being used in cities such as Toronto, Canada; Ithaca, New York; and Stockholm, Sweden. There are over 40 commercial district cooling utility systems in North

its billing process, HSWAC will determine customers' actual cooling loads and specific SWAC system energy use (kWh/ton-hr). By applying reasonable engineering assumptions about displaced conventional cooling systems (as HECO has done in its MAP analysis of commercial air conditioning DSM measures),[31] it is possible to calculate pre-installation energy use, demand requirements, and savings.

Similarly, the CICR Program requires independent third-party review of the proposed energy efficiency technology. Although HSWAC has no objection to such review in principle, it is plainly not warranted for SWAC systems insofar as the technology is well-established and had been successfully deployed for many years in Hawaii and several other locations around the world.

For all of the foregoing reasons, HREA respectfully requests the Commission to grant the rebate requested for SWAC systems in Hearing Exhibit 2, as modified by subsequent HREA filings before the Commission in this docket, including but not limited to the following: that the amount of the rebate be $500 per ton; that the rebate limit be $500,000 per customer for all customers; and that the rebate be prescriptive and therefore provided through the CIEE Program rather than the CICR Program.

IV. CONCLUSION

This opening brief is presented with the august goal of working with the Commission and the other Parties and Participants in this docket to establish a Demand-Side Portfolio Standard ("DPS") and implement the DPS via Public Benefit Fund (PBF) Market Structure as presented herein. HREA also supports the aggressive implementation HECO's DSM programs, include a program to support SWAC, as an interim measure, during the transition to the new PBF Market

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America and approximately 2,000 district cooling systems used in institutions such as universities, hospitals, airports, and military facilities in North America.

[31] Chiller and heat rejection system efficiency was determined through a weighed average of individual building chiller and heat rejection system efficiencies for the surveyed buildings. Average chiller and heat rejection system efficiency was determined to be 0.88 kWh/ton-hr. This result is very close (i.e., within 4%) to the chiller (i.e., chiller + cooling system) "peak efficiency" of 0.85 kW/ton for existing large office buildings assumed by Global Energy Partners in their analyses for HECO.

Structure. Finally, we believe the PBF Market Structure will provide more cost-effective implementation of a robust, innovative and competitive market for DSMs in Hawaii. We believe achieving this goal will help us take a major step down the path to the sustainable energy future that awaits us.

DATED: Honolulu, Hawaii, October 25, 2006.

Warren S. Bollmeier II
President, HREA

EXHIBIT A

IMPLEMENTING DSM IN HAWAII VIA A PUBLIC BENEFIT FUND MARKET STRUCTURE

This Exhibit includes two parts as follows:

(1) Part 1 - brief summary of the history of the Energy Trust of Oregon, and

(2) Part 2 - applying the Energy Trust of Oregon model to Hawaii.

Part 1 – Brief History of the Energy Trust of Oregon

1. From the Energy Trust of Oregon's web-site (http://www.energytrust.org/who/index.html):

   Energy Trust of Oregon, Inc., began operation in March 2002, charged by the Oregon Public Utility Commission (OPUC) with investing in cost-effective energy conservation, helping to pay the above-market costs of renewable energy resources, and encouraging energy market transformation in Oregon.

   Energy Trust funds come from a **1999 energy restructuring law**, which required Oregon's two largest investor-owned utilities to collect a three percent "public purposes charge" from their customers. The law also dedicated a separate portion of the public-purpose funding to energy conservation efforts in low-income housing energy assistance and K-12 schools.

   The law authorized the OPUC to direct these funds to a non-governmental entity for investment. Energy Trust was organized as a nonprofit organization for this purpose. Energy Trust organized as a nonprofit corporation and entered into a November 2001 **grant agreement** with the OPUC to guide Energy Trust's electric energy work. The grant agreement was developed with extensive input from key stakeholders and interested parties, and has been amended several times since 2001.

   In addition to its work under the 1999 energy restructuring law, the Energy Trust administers gas conservation programs for residential and commercial customers of Northwest Natural (starting in 2003) and Cascade Natural Gas Corporation (starting July, 2006), and residential customers of Avista Corporation (September, 2006) in Oregon.

   As part of its oversight of Energy Trust, the OPUC has adopted performance measures against which to benchmark Energy Trust's performance. For 2006, these measures are:

   - Save at least 20 average megawatts of electricity, computed on a three-year rolling average basis at a levelized cost of no more than 2 cents per kilowatt-hour
   - Save at least 700,000 therms of gas, computed on a three-year rolling average basis at a levelized cost of no more than 30 cents per therm
   - Earn an unqualified audit opinion
   - Keep administrative and program support costs below 11 percent of annual revenues

- Maintain a reasonable level of customer satisfaction, as measured by surveys, and maintain statistics on complaints

Energy Trust has its own board of directors, which has adopted the following 10-year (2002-2012) goals:

- save 300 average megawatts of electricity
- save 19,000,000 therms of gas
- help meet 10% of Oregon's generation needs with renewable energy
- bring energy-saving and renewable energy opportunities to consumers who historically have been underserved
- help businesses promoting energy efficiency and renewable energy to succeed and thrive
- encourage Oregonians to integrate energy efficiency and renewable energy into their daily lives

2. Some Additional Facts about Oregon and the Energy Trust of Oregon (obtained in discussions with Energy Trust staff)
   - The Trust is one of 17 Clean Energy Funds in 12 states. For information on all the funds see: http://www.cleanegroup.org/ and a report summarizing the first year activity of the Clean Energy States Alliance prepared by the Clean Energy Group: http://www.cleanenergystates.org/library/Reports/CESA_Year_One_Report_Final.pdf.
   - Oregon's population is about 3.6 million.
   - 75% of the population is served by Portland Gas & Electric and PacificCorp (operating in Oregon as Pacific Power), and the remaining 25% by about two dozen cooperatives.
   - The Trust's annual budget for energy efficiency and renewables is about $58M, derived from a 3% charge on Oregon's electricity and gas customers. Of that about $11M comes from electricity customers; $47M from gas customers.
   - The Trust has a current staff of 39 with plans to expand to 42. Most of actual installation of DSM measures is accomplished with outside contractors (energy service providers).
   - The Trust administers support to large projects, such as windfarms, with its staff.
   - The Trust seeks grants from other agencies, such as the federal government, to cost-share and expand their activities.
   - While the overall administrative costs are held to 11%, costs for some individual programs are higher. For example, wind costs are 20% (resulting in 80% for incentives) and 25% to 30% for photovoltaics (resulting in 70% to 75% for incentives).
   - The Oregon PUC spent approximately a year to set-up the Trust, starting with the formation of a Board of Directors and soliciting input from interested stakeholders.

Part 2 – Applying the Energy Trust of Oregon Model to Hawaii

1. Overall Major Similarities and Differences between Oregon and Hawaii:
   - Both Oregon and Hawaii are among the lesser populated states in the U. S. and both possess abundant renewable resources.

- Both Oregon and Hawaii have one heavily populated area – Portland metro area vs. Honolulu, secondary population centers, and more remote, less populated areas.
- Both Oregon and Hawaii have Investor Owned Utilities that serve the bulk of the populace; Oregon has two (Portland Gas & Electric and Pacific Corporation) vs. Hawaii with one (HECO). Both have Coops. One major difference: Oregon has natural gas utilities and Hawaii does not.
- Both states are environmentally-oriented. However, Oregon does not have a RPS, while Hawaii does. Oregon has a Public Benefits Fund (PBF) and Fund Administrator, while Hawaii doesn't. Both states have net energy metering.
- Oregon implemented its PBF from legislation that authorized the Oregon PUC to establish a non-profit corporation to support and encourage cost-effective conservation (which has included energy efficiency and renewables to date). Hawaii has passed legislation (Act 162, 2006 session) that authorizes the Hawaii PUC to implement a PBF and PBF Administrator, if determined to be appropriate.
- Programs offered by the Trust include: home energy savings, efficient new homes, efficient home products, building efficiency, new building efficiency, production efficiency (manufacturing process, water and wastewater treatment and agriculture), solar energy and solar water heating, and other renewable programs (utility-scale, small-scale wind, hydro, biomass and geothermal). We can see some similarities here between what we are already doing in Hawaii, and what we could be doing.

2. Next Steps for Implementation of a PBF Market Structure in Hawaii: HREA hereby requests the Commission proceed, as an outcome of the instant docket, to establish and implement the PBF Market Structure. We suggest the following steps:

- Prepare Framework for the PBF Market Structure. Commission prepares the Framework for the PBF Market Structure, which will include as a minimum:
  (a) Role of the PBF Administrator vs. the incumbent utilities. Note: HREA recommends that the non-profit focus on DSMs on the customer-side of the meter;
  (b) Level of funding to be created via a charge on electric utility customers. Note: HREA recommends a 3% charge;
  (c) Prepare a preliminary contract for the PBF Administrator, including an initial scope of work (including preliminary DPS requirement, performance evaluation process, and required coordination with the host utility and other agencies), timeline and budget for initial operations of the non-profit; and
  (d) Specific guidance on transition issues and implementation of high-priority DSMs
- Appoint and Fund a Board of Directors. Commission appoints an initial board of directors to form a non-profit corporation, which would become the PBF Administrator.
- Negotiate and Award Initial Contract. The Commission negotiates and awards the non-profit an initial contract for the formation and organization of the non-profit, including funding for its operation. The Board would then prepare a draft scope of work, timeline and budget for the non-profits initial operations.
- Select an Executive Director and Key Staff. The Board selects, with approval of the Commission, an Executive Director, who then works with the Board and the Commission to organize the structure of the non-profit and begin filling staff positions, as appropriate.

- Solicit Input from Stakeholders. The Executive Director and the Board, in coordination with the Commission, solicits input from all interested stakeholders regarding the scope of work, timeline and budget for the non-profit.
- Prepare proposal for contract extension. The Executive Director and the Board prepare a draft scope of work, timeline and budget proposal for completing the first two years of operation. .
- Negotiate and approve a contract extension. The Commission negotiates and awards a contract extension based on the non-profit's proposal. In addition to reaching agreement on the scope of work, time and budget. The contract extension should also include:
  (a) a task to prepare a 5-year program plan, initiating at the end of the 2-year contract extension period,
  (b) plan for securing outside funding to enhance and expand the non-profits activities, and
  (c) plan for making the non-profit's office (s) a showcase for energy-efficiency and renewables.
- Initiate Operations. Initiate operations to implement the contract extension.

EXHIBIT B[32]

RELATIVE COST EFFECTIVENESS OF ENERGY EFFICIENCY PROGRAMS (1996 TO 2000)[33]

Measure	Hawaii	U.S. Average
State spending as a % of Revenues	0.70%	0.47%
Savings in kWh per capita	44 kWh/capita	213 kWh/capita
Savings in kWh per capita / State spending as a % of Revenues	63 kWh/ capita/%	453 kWh/ Capita/%

Some interesting observations:

- Hawaii spent a greater % of revenues on energy efficiency programs than the U.S. average (1996 to 2000 average = 0.70% for Hawaii vs. 0.47% for U.S Total, or 49% more).
- Hawaii obtained significantly less savings in kWh per capita (1996 to 2000 average = 44 kWh per capita for Hawaii vs. 213 kWh per capita for U.S Total, or 79% less).
- So, Savings in kWh per capita as a function of State Spending as a % of Revenues is even worse for Hawaii (63 kWh per capita per % of revenues spent for Hawaii vs. 453 kWh per capita per % of revenues spent for U.S Total).
- Hawaii's utility-based energy efficiency programs were only 1/7 as cost effective as the U.S Total for this time period.

Conclusions:

- Hawaii's utility-based energy efficiency programs have not been very cost effective.
- There's got to be a better way (or maybe many better ways).
- It's time to pursue a better approach.

[32] This Exhibit B is identical to Exhibit B in HREA's FSOP.

[33] The data included in the table below were extracted from: York and Kushler, State Scorecard on Utility and Public Benefits Energy Efficiency Programs: An Update, ACEEE, December, 2002. Note: these data were also summarized in Figures 1 and 2 from: Harrington and Murray, Who Should Deliver Ratepayer Funded Energy Efficiency – A Survey and Discussion Paper, RAP, May 2003.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served HREA's Post-Hearing Opening Brief upon the following parties and participants by placing copies of same in the U.S. Mail, postage prepaid, addressed as follows:

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DATED: Honolulu, Hawaii, October 25, 2006.

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